

CLAIMS:

1. A female terminal for receiving and mating with a male terminal of the type having at least one flat surface extending longitudinally along the male terminal, said female terminal comprising:
 - a terminal body with a mating end and a circuit connecting end;
 - 5 a terminal receiving passageway defined in the mating end including two spaced apart sidewalls extending lengthwise along the passageway, said sidewalls arranged to resiliently flex away from each other as the male terminal is inserted into the male terminal;
 - at least one inwardly projecting primary contact disposed along one of said sidewalls for engaging said at least one flat surface of the male terminal when the male terminal is
 - 10 inserted into the terminal receiving passageway; and
 - at least one inwardly projecting arc discharging contact disposed along one of said sidewalls forwardly of said primary contact in said terminal receiving passageway such that said male terminal comes into contact with said arc discharging contact before coming into contact with the primary contact as the male terminal is inserted into the terminal receiving
 - 15 passageway, whereby any arc discharge between the male and female terminals occurs at the arc discharging contact.
2. The female contact as claimed in accordance with claim 1 wherein an inwardly projecting primary contact is disposed on each of said two spaced apart sidewalls, and an inwardly projecting arc discharge contact is disposed on each of said two spaced apart sidewalls.
3. The female contact as claimed in accordance with claim 1 wherein said at least one arc discharge contact is elongated, with the direction of elongation generally parallel to the longitudinal direction of the passageway.
4. The female contact as claimed in accordance with claim 3 wherein an aperture is defined in the sidewall above said at least one elongate arc discharge contact and an aperture is defined in the sidewall below said elongate arc discharge contact.
5. The female contact as claimed in accordance with claim 4 wherein said at least one arc discharge contact has sharply formed edges along said apertures.

6. The female contact as claimed in accordance with claim 1 wherein said at least one arc discharge contact has a portion that is curved inwardly into the passageway for contacting the male terminal as the male terminal is inserted into the passageway.

7. The female contact as claimed in accordance with claim 6 wherein said inwardly curved portion of the arc discharge contact is spherically shaped.

8. The female contact as claimed in accordance with claim 1 wherein each of said sidewalls is of generally U-shaped cross section and wherein the legs of the U-shaped cross sections are spaced apart from each other to define at least one longitudinal slit extending lengthwise along the terminal receiving passageway.

9. The female terminal as claimed in accordance with claim 8 wherein said U-shaped cross sections of the sidewalls of the female terminal flex upon insertion of the male terminal into the passageway and upon engagement of the male terminal between said at least one arc discharging contact and between said at least one inwardly projecting primary
5 contact, said sidewalls providing normal forces at said at least one inwardly projecting primary contact against the male terminal to provide electrical contact between the male and female terminals.

10. The female terminal as claimed in accordance with claim 1 wherein said sidewalls flex about an axis generally parallel to a respective sidewall and in a direction perpendicular to the terminal receiving passageway when said male terminal is inserted into said passageway.

11. The female terminal as claimed in accordance with claim 1 wherein said sidewalls resiliently rotate away from each other when the male terminal is inserted into said passageway.

12. The female terminal as claimed in accordance with claim 1 wherein said at least one inwardly projecting primary contact has a flat contacting surface that is elongated in the direction of insertion of the male terminal in the passageway.

13. The female contact as claimed in accordance with claim 12 wherein said flat contacting surface of the at least one inwardly projecting primary contact is disposed at an angle to the sidewall, said flat contacting surface becoming substantially coplanar with the at least one flat surface on the male terminal when the male terminal is inserted into the passageway.

14. The female terminal as claimed in accordance with claim 1 wherein a notch is made partially into at least one of the sidewalls of the female terminal to control the flexing of the sidewall when the male terminal is inserted into the passageway.

15. A female terminal for receiving and mating with a male terminal of the type having at least two opposite flat surfaces extending longitudinally along the male terminal, said female terminal comprising:

- a terminal body with a mating end and a circuit connecting end;
- a terminal receiving passageway defined in the mating end including two opposed spaced apart sidewalls extending lengthwise along the passageway, said sidewalls and arranged to resiliently flex away from each other as the male terminal is inserted into the male terminal;
- an inwardly projecting primary contact disposed along each of said sidewalls for engaging said opposite flat surfaces of the male terminal when the male terminal is inserted into the terminal receiving passageway; and
- an inwardly projecting arc discharging contact disposed along each of said sidewalls forwardly of said primary contacts in said terminal receiving passageway such that said male terminal comes into contact with said arc discharging contacts before coming into contact with the primary contacts as the male terminal is inserted into the terminal receiving passageway, whereby any arc discharge between the male and female terminals occurs at the arc discharging contacts.

16. The female contact as claimed in accordance with claim 15 wherein said arc discharge contacts are elongated, with the direction of elongation generally parallel to the longitudinal direction of the passageway.

17. The female contact as claimed in accordance with claim 16 wherein an aperture is defined in the sidewall above each of said elongate arc discharge contacts and an aperture is defined in the sidewall below each of said elongate arc discharge contacts.

18. The female contact as claimed in accordance with claim 17 wherein said arc discharge contacts have sharply formed edges along said apertures.

19. The female contact as claimed in accordance with claim 15 wherein said arc discharge contacts each have a portion that is curved inwardly into the passageway for contacting the male terminal as the male terminal is inserted into the passageway.

20. The female contact as claimed in accordance with claim 19 wherein said inwardly curved portion of each of the arc discharge contacts is spherically shaped.

21. The female contact as claimed in accordance with claim 15 wherein each of said sidewalls includes at least one leg bent from each sidewall extending toward the opposed sidewall and wherein at least one of the legs includes one arc discharge contact.

22. The female terminal as claimed in accordance with claim 21 wherein both of said legs include an arc discharge contact.

23. The female contact as claimed in accordance with claim 15 wherein each of said sidewalls is of generally U-shaped cross section with legs bent from each sidewall extending toward the opposed sidewall and wherein the legs of the U-shaped cross sections are spaced apart from each other to define at least one longitudinal slit extending lengthwise
5 along the terminal receiving passageway and further wherein one of said arc discharge contacts is disposed in one of said legs adjacent said one longitudinal slit.

24. The female terminal as claimed in accordance with claim 15 wherein said sidewalls flex about an axis generally parallel to a respective sidewall and in a direction perpendicular to the terminal receiving passageway when said male terminal is inserted into said passageway.

25. The female terminal as claimed in accordance with claim 15 wherein said sidewalls resiliently rotate away from each other when the male terminal is inserted into said passageway.

26. The female terminal as claimed in accordance with claim 15 wherein each of said inwardly projecting primary contacts has a flat contacting surface that is elongated in the direction of insertion of the male terminal in the passageway.

27. The female contact as claimed in accordance with claim 26 wherein said flat contacting surface of each of the inwardly projecting primary contacts is disposed at an angle to the respective sidewall, each of the flat contacting surfaces becoming substantially coplanar with the opposite flat surfaces on the male terminal when the male terminal is
5 inserted into the passageway.

28. The female terminal as claimed in accordance with claim 15 wherein a notch is made partially into at least one of the sidewalls of the female terminal to control the flexing of the sidewall when the male terminal is inserted into the passageway.

29. The female contact as claimed in accordance with claim 15 wherein each of said sidewalls includes at least one leg bent from each sidewall extending toward the opposed sidewall and wherein at least one of the legs includes one arc discharge contact.

30. The female terminal as claimed in accordance with claim 29 wherein both of said legs include an arc discharge contact.

31. The female terminal as calmed in accordance with claim 29 wherein each of said sidewalls is of a generally U-shaped cross section with legs bent toward an opposed sidewall wherein the legs of the U-shaped cross sections are spaced so that two of the legs are spaced apart to define one longitudinal slot extending lengthwise along the terminal receiving passageway and each having a first arc discharge contact disposed therein and projecting toward said passageway, and at least one leg opposite the two spaced apart legs, bent from one sidewall toward the other sidewall with a second arc discharge contact disposed therein and opposed to said first arc discharge contacts in said opposed legs.